Physical Review A - Atomic, Molecular, and Optical Physics 2014 vol.89 N4

# Stationary and quasistationary light pulses in three-level cold atomic systems

Moiseev S., Sidorova A., Ham B.
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

## Abstract

We have studied stationary and quasistationary signal light pulses in cold Λ-type atomic media driven by counterpropagating control laser fields at the condition of electromagnetically induced transparency. By deriving a dispersion relation we present spectral and temporal properties of the signal light pulse and a significant influence of atomic decoherence on the coupled stationary light pulses for spatial splitting. Finally we discuss quasistationary light pulse evolution characterized by frozen spatial spreading for a robust coherent control of slow light pulses. © 2014 American Physical Society.

http://dx.doi.org/10.1103/PhysRevA.89.043802